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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/992,135	11/14/2001	Annette M. Crevasse	CREVASSE 53-105-80-152-79	1430

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HITT GAINES P.C.  
P.O. BOX 832570  
RICHARDSON, TX 75083

EXAMINER

CHEN, KIN CHAN

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/992,135

Applicant(s)

CREVASSE ET AL.

Examiner

Kin-Chan Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17-27 is/are pending in the application.
- 4a) Of the above claim(s) 24-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of claims 17-23, Group I in Paper No. 5 is acknowledged. The traversal is on the ground(s) that the product cannot be made by another and materially different process. This is not found persuasive because as stated in previous office action (restriction), the product can be made by another and materially different process such as slurry-less polishing process. Patentability of a product by process is based on the product and **does not depend on the process of making it** (MPEP 2113). Besides, the method of group I and the product / device of the group II are under different classification and involve different search that would be a serious burden on the examiner.

The requirement is still deemed proper and is therefore made FINAL.

### *Specification*

2. The disclosure is objected to because of the following informalities:

Throughout the specification (e.g., page 15, line 13), Fig. 1B is not shown and described in the drawings.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

3. Claims 17-20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andreas (US 5,895,550).

Andreas teaches that the substrate may be polished with a polishing tool using a polishing slurry thereby creating a waste slurry. The waste slurry may be conveyed to a drain (so-called in a recirculating slurry system in Andreas) and having an agglomerate particle size. The waste slurry may be subjected to energy emanating from an energy source. The energy (e.g., ultrasonic energy) may be transferred from the energy source to the waste slurry to substantially reduce the agglomerate particle size. See col. 5, lines 44-67; col. 7, lines 11-23.

Andreas teaches the method for polishing the semiconductor substrate. Andreas is not particular about the structure of the semiconductor. Hence, it would have been obvious to one with ordinary skilled in the art to have a structure wherein an active device is formed on a semiconductor wafer and a substrate is formed thereon because it is one of the most popular structure in the semiconductor device fabrication.

As to dependent claims 18-19, Andreas teaches applying the acoustic energy source intermittently using inline particle size measurement and also teaches that frequency and intensity can be varied to controllably vary the particle size (col. 7, lines 9-23). Therefore, the prior art teaches the limitations. As to dependent claim 20, the discussion from above is repeated here. It would have been obvious to one with

ordinary skilled in the art to sense different nominal absorbance for cycling on-off of the system because it is merely choice of design depending on the specific slurry system.

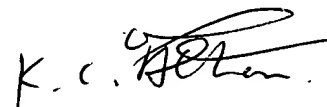
4. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andreas (US 5,895,550) as applied to claim 17 above, and further in view of Adams et al. (US 5,755,614; hereinafter "Adams") and Brunelli (US 5,957,750).

The discussion of modified Andreas from above is repeated here.

Andreas teaches using ultrasonic energy for transferring energy. Andreas does not disclose that the heating energy may be used for transferring energy. Adams is only relied on to show using heating energy in the recycling system and using various sensors in order to control the characteristics of slurry (col. 6, lines 54-67). Hence, it would have been obvious to one with ordinary skilled in the art to modify Andreas by using heating energy in the recycling system as disclosed by Adams in order to control the characteristics of slurry. Furthermore, the skilled artisan understands that heating the slurry would reduce the viscosity of the slurry and prevent slurry from hardening (therefore prevent from agglomerating). Brunelli is only relied on to show heating the slurry would reduce the viscosity of the slurry and prevent slurry from hardening. Hence, it would have been obvious to one with ordinary skilled in the art to use heat energy in Andreas and Adams. In addition, it is obvious that heating energy is supplied by heating coil or hot water.

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5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kin-Chan Chen whose telephone number is (703) 305-0222. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin Utech can be reached on (703) 308-3836. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2934.



Kin-Chan Chen  
Primary Examiner  
Art Unit 1765

K-C C  
August 1, 2003